

REMARKS

Paragraphs 0050 and 0068 of the specification have been amended to better conform the textual description to Figures 2B, 2C and 12. "B-shape(d)" has been replaced with "mirror E-shape" to more accurately describe the shape of the main core as illustrated and supported by Figures 2B, 2C and 12. No new matter has been added.

Claims 1-12 are pending in this application. Claims 1, 3, 4 and 6 have been amended to clarify the invention. For the reasons set forth below, Applicant believes that the rejections should be withdrawn and that the Claims 1-12 are in condition for allowance.

REJECTION OF CLAIMS 1-12 UNDER 35 U.S.C. 103(a)

The Examiner rejected Claims 1-3 & 7-8 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,600,402 to LaFleur *et al.* ("LaFleur") in view of U.S. Patent No. 4,613,841 to Roberts *et al.* ("Roberts"). The Examiner rejected Claims 4-6 & 10-12 under 35 U.S.C. 103(a) as being unpatentable over LaFleur in view of Reissued U.S. Patent No. 31,840 to Harris *et al.* ("Harris") and in further view of Roberts.

The Examiner has not established a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness, the Examiner must: (1) identify the reason why a person of ordinary skill in the art would have combined the teachings of the references; and (2) show that the references teach or suggest all of the claimed limitations.

CLAIMS 1 and 4

Claims 1 and 4 have been amended to clarify the claimed invention. With respect to Claims 1 and 4, the cited references fail to disclose or suggest all of the features of the claimed invention. As acknowledged by the Examiner in the rejections of Claims 1 and 4 LaFleur and Harris do not disclose or suggest a plurality of auxiliary cores as recited by Claims 1 and 4. To overcome this lack of teaching in LaFleur and Harris, the Examiner relies on Roberts and alleges that Roberts teaches "a plurality of auxiliary cores (Roberts - Fig. 9 [153]) disposed in the given gap", thus equating the annular lips 153 of Roberts with the auxiliary cores of the claimed invention.

Claims 1 and 4 recite switching power supplies that include a first series circuit, a transformer, a second series circuit, a smoothing circuit, and a control circuit, wherein the transformer includes a main core, made of a magnetic material and a “plurality of auxiliary cores, made of *magnetic material*.” [*Emphasis added*, 0050 and 0068].

Roberts discloses an integrated electrical transformer-inductor involving the use of bobbins and spacers. Roberts clearly discloses that within the transformer the lower annular spacers 150 and upper annular spacers 151 “preferably comprise a material which is also both dielectric and *nonmagnetic*, and the annular spacers 150 and 151 “may also contain annular lips 153 for more secure support of cylindrical shell 110.” [*Emphasis added*, Fig. 9 and 7:41-46]. Because the annular spacers 150 and 151 are comprised of nonmagnetic material and may contain annular lips 153, the annular lips 153 must also be comprised of nonmagnetic material. Thus the nonmagnetic annular lips 153, as cited by the Examiner, are clearly different from the “auxiliary cores, made of magnetic material”, as recited by Claims 1 and 4. Therefore, Roberts does not disclose or suggest “auxiliary cores, made of magnetic material.”

Furthermore, the annular lips of Roberts are provided to more securely support the cylindrical shell and thus provide a mechanical function, but no electrical function. [Fig. 9 and 7:41-46]. In contrast, in the claimed invention, the auxiliary cores (*i.e.*, adjusting the number of) provide an electrical function by enabling a well-suited leakage inductance value to be regulated for a desired reactor (inductor). [*See e.g.*, 0049, 0051, 0053, 0069, etc.]. Thus the auxiliary cores of the claimed invention do not serve as merely support structures as the annular lips disclosed by Roberts. The annular lips taught by Roberts are quite different and do not function as the auxiliary cores of the claimed invention. Therefore, Roberts does not disclose or suggest “auxiliary cores” as recited by Claims 1 and 4.

Specifically with respect to Claim 4, Harris does not disclose or suggest a main core formed with a mirror E-shape. Harris discloses a transformer for use in a static inverter in association with one or two switching devices, wherein the core 15 “is assembled from two

“U” cores ... with air gaps at the joints.” [Fig. 2 and 8:35-38]. In addition, the Examiner alleges that the left pole of the core 15 discloses the central leg of the claimed invention. However, Harris does not disclose or suggest a main core with a mirror E-shape, wherein two Es face each other, the bottom legs are connected to each other, and the central legs connect to form a central leg with a given gap between the legs. [*Compare e.g.*, Harris - Fig. 2 with Fig. 12 and 0068 of the Present Application]. The shape of the core disclosed by Harris is distinctly different from the shape of the main core as claimed by Claim 4.

Therefore, the Examiner has failed to show that LaFleur in combination with Roberts teaches or suggest all the elements of Claim 1, and that LaFleur in combination with Harris and Roberts teaches or suggest all the elements of Claim 4. Claims 1 and 4 are patentable over LaFleur and Harris and Roberts. Thus the rejections should be withdrawn.

CLAIMS 2, 7 and 8

Claims 2, 7 and 8 depend directly or indirectly from independent Claim 1. Accordingly, for at least the same reasons discussed above, Claims 2, 7 and 8 are patentable over LaFleur in view of Roberts.

CLAIMS 5, 10 and 11

Claims 5, 10 and 11 depend directly or indirectly from independent Claim 4. Accordingly, for at least the same reasons discussed above, Claims 5, 10 and 11 are patentable over LaFleur in view of Harris and in further view of Roberts.

CLAIMS 3 and 6

Claims 3 and 6 have been amended to clarify the claimed invention. With respect to Claims 3 and 6, the cited references fail to disclose or suggest all of the features of the claimed invention. As recognized by the Examiner in the rejections of Claims 3 and 6 LaFleur and Harris do not disclose or suggest an outer bobbin being made of an insulating magnetic material, as claimed by Claims 3 and 6. To overcome this lack of teaching in LaFleur and Harris, the Examiner relies on Roberts and alleges that Roberts teaches “an outer bobbin (Fig. 9 [150, 151]) ... which is made of an insulating magnetic material (7:41-

44)”, thus equating the annular spacers 150 and 151 of Roberts with the outer bobbin of the claimed invention.

As discussed above, Roberts clearly discloses that within the transformer the lower annular spacers 150 and upper annular spacers 151 “preferably comprise a material which is also both dielectric and *nonmagnetic*. [*Emphasis added*, Fig. 9 and 7:41-44]. Because the annular spacers 150 and 151 of Roberts are comprised of nonmagnetic material, the spacers cannot be an outer bobbin made of insulating magnetic material as claimed by Claims 3 and 6. [See 0057]. Thus the nonmagnetic annular spacers 150 and 151, as cited by the Examiner, are clearly different from the “outer bobbin being made of an insulating magnetic material”, as recited by Claims 3 and 6. Therefore, Roberts does not disclose or suggest the “outer bobbin being made of an insulating magnetic material.”

Specifically with respect to Claim 6, Harris does not disclose or suggest a main core formed with a mirror E-shape or the central leg of the claimed invention. Harris discloses a transformer for use in a static inverter in association with one or two switching devices, wherein the core 15 “is assembled from two “U” cores ... with air gaps at the joints.” [Fig. 2 and 8:35-38]. In Harris there is no teaching of a main core with a mirror E-shape, wherein two Es face each other, the bottom legs are connected to each other, and the central legs connect to form a central leg with a given gap between the legs. [*Compare e.g.*, Harris - Fig. 2 with Fig. 12 and 0068 of the Present Application]. The shape of the core disclosed by Harris is distinctly different from the shape of the main core as claimed by Claim 6.

Therefore, the Examiner has failed to show that LaFleur in combination with Roberts teaches or suggest all the elements of Claim 3, and that LaFleur in combination with Harris and Roberts teaches or suggest all the elements of Claim 6. Claims 3 and 6 are patentable over LaFleur and Harris Roberts. Thus the rejections should be withdrawn.

CLAIM 9

Claim 9 depends directly from independent Claim 3. Accordingly, for at least the same reasons discussed above, Claims 9 is patentable over LaFleur in view of Roberts.

CLAIM 12

Claim 12 depends directly from independent Claim 6. Accordingly, for at least the same reasons discussed above, Claim 12 is patentable over LaFleur in view of Harris and in further view of Roberts.

CONCLUSION

The foregoing is submitted as a complete response to the Office Action identified above. Applicant believes this application is now in condition for allowance and solicits a notice to that effect. If there are any issues that can be addressed via telephone, the Examiner is asked to contact the undersigned at 404.685.6799. The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, to Deposit Account No. 11-0855.

Respectfully submitted,



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